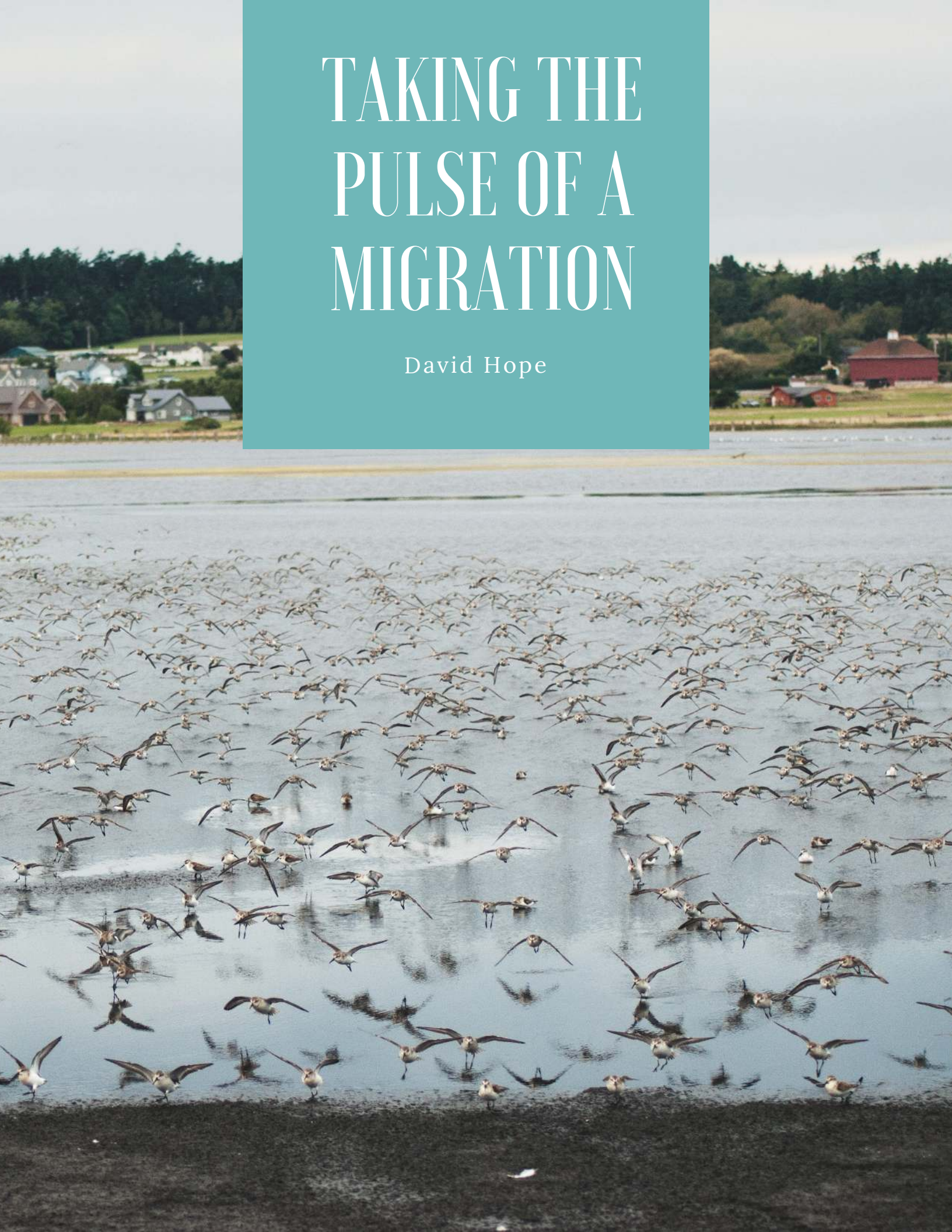
TAKING THE PULSE OF A MIGRATION

David Hope

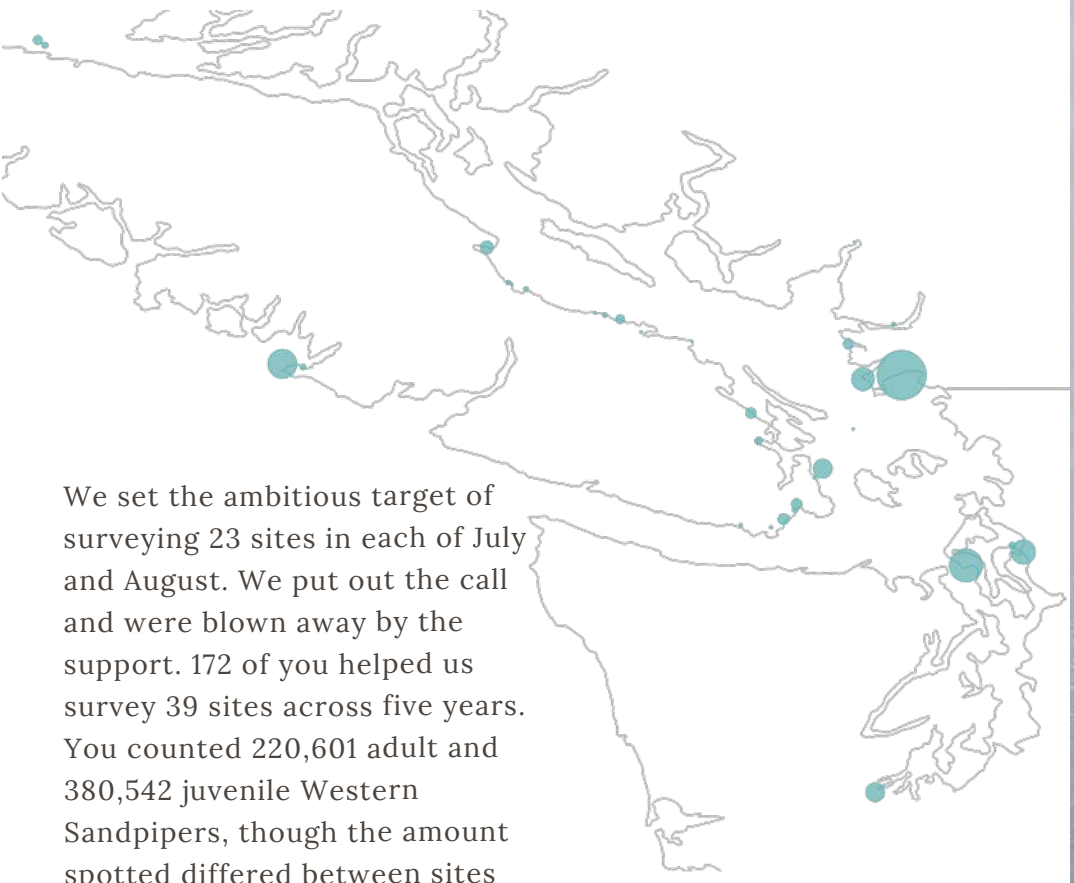


TAKING THE PULSE OF A MIGRATION

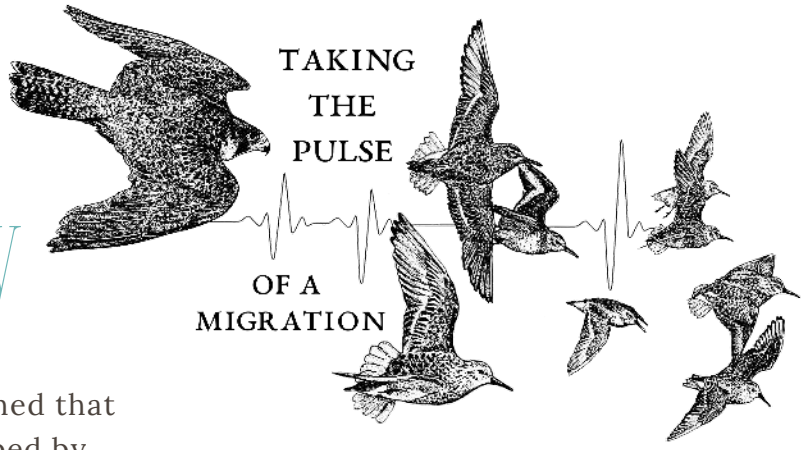
PROJECT GOAL

In 2013 we set out to understand the factors that shaped counts of Western Sandpipers on southward migration. Our goal was to use the understanding gained from over 20 years of research to develop a simulation of the birds' migration through the Salish Sea. With a simulation of the sandpipers migration, we could understand the factors shaping counts. But we had no counts! To remedy this we called on bird-watchers and volunteers across the region to join us for a twice yearly count of sandpiper abundance across the Salish Sea.

SURVEY SITES



We set the ambitious target of surveying 23 sites in each of July and August. We put out the call and were blown away by the support. 172 of you helped us survey 39 sites across five years. You counted 220,601 adult and 380,542 juvenile Western Sandpipers, though the amount spotted differed between sites and between years.



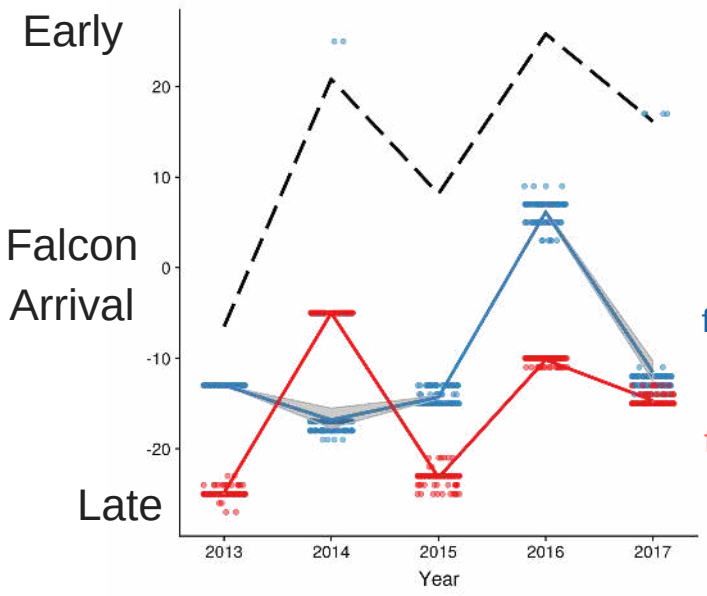
RESULTS OVERVIEW

Using survey results, our simulation determined that bird distribution in the region was likely shaped by when migrating Peregrine Falcons arrived.

Our simulation of Western Sandpiper migration allowed us to generate simulated counts of birds. We could modify the simulation to change the generated counts. We found that across the five years of surveys modifying the timing of Peregrine Falcon arrival in the region generated most realistic counts. Previous research has shown that the date of snowmelt in Alaska is an independent measure of the annual timing of falcon arrival in the Salish Sea. The model derived estimate of falcon timing closely matched the annual pattern of dates of snowmelt. Other conditions like food abundance, and predator numbers could make the simulation reproduce the observed counts, but the settings required were not realistic.

FALCON TIMING SHAPES COUNTS

Our model predicted the distribution of sandpipers between sites was primarily driven by the annual timing of arrival of migrating Peregrine Falcons.



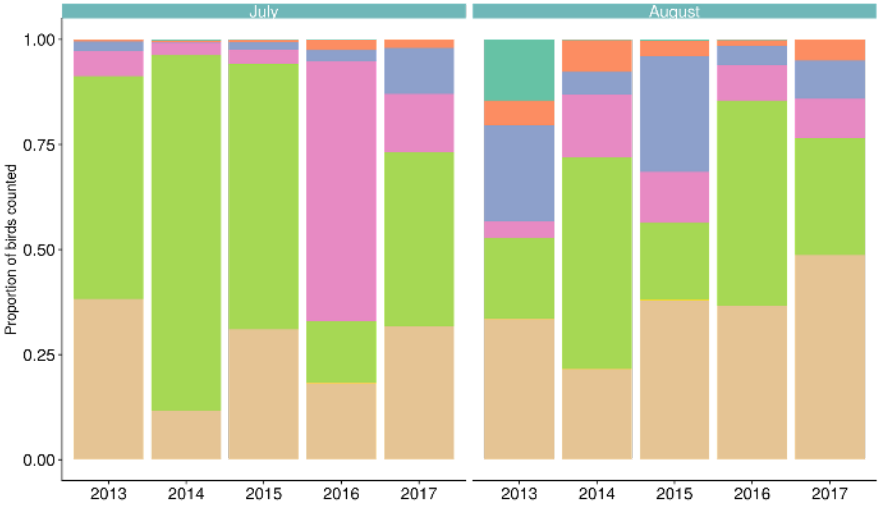
8200

counts by 174 surveyors across 550 survey hours

That is over 3 weeks of surveying 24 hours a day!

REGIONS

Each region's importance as a stopover site varied to some degree by year and month. Likewise, the abundance at the sites within each region varied between months.

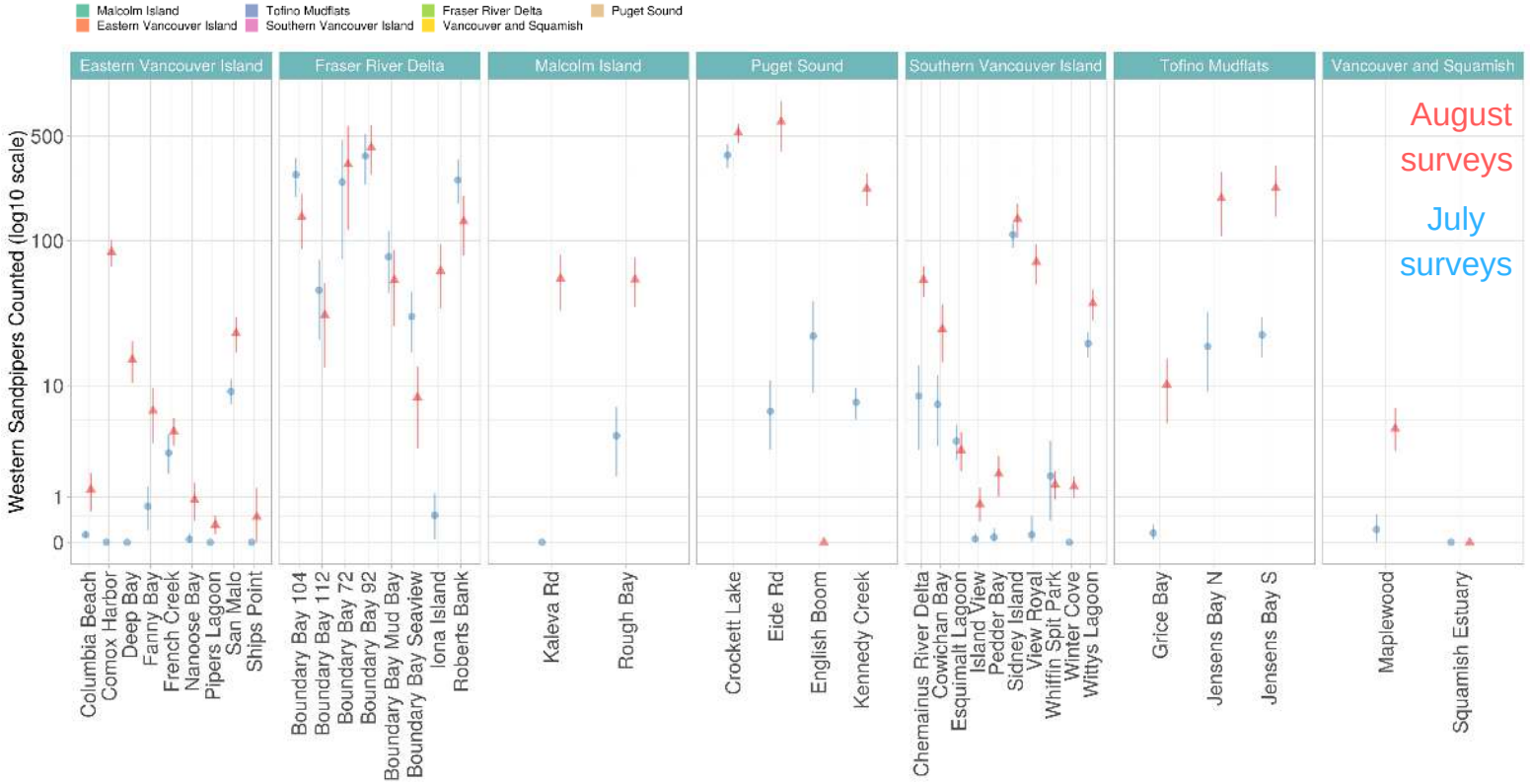


SURPRISINGLY WIDESPREAD

Sandpipers were found at almost every site we surveyed, though sometimes a site was empty in July, but had good numbers in August.

SITES OF IMPORTANCE

Boundary Bay and Roberts Bank were consistently utilized in both months and stand apart as the most important sites on southward migration. Sidney Island, Crockett Lake, and the now gone Eide Rd Ponds were also important. Jensens Bay was an important location for juveniles, but less so for adults.



601,144

Western Sandpipers counted